

CLAIMS

1. An injectable pharmaceutical product comprising an agent, the agent comprising an insoluble carrier to which is bound a peptide, the peptide
5 being capable of binding fibrinogen such that the agent binds via the bound fibrinogen to activated platelets in preference to inactive platelets, and wherein the peptide is not fibrinogen.
2. A product according to Claim 1 in which, if the product is introduced
10 intravenously, the peptide binds fibrinogen such that the bound fibrinogen will preferentially become involved in formation of a blood clot at the site of a wound where platelets are already activated.
3. A product according to Claim 1 or 2 wherein the peptide comprises a
15 fibrinogen-binding sequence obtained from the platelet membrane glycoprotein GPIIb or GPIIIa, such as the sequence TDVNGDGRHDL or a variant of such a sequence.
4. A product according to any one of the preceding claims wherein the
20 peptide comprises TDVNGDGRHDL.
5. A product according to any one of the preceding claims wherein the peptide comprises the sequence of Gly-(Pro/His)-Arg-Xaa at the amino terminus, wherein Xaa is any amino acid.
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6. A product according to Claim 5 wherein Xaa is Pro, Sar, Gly or Val.
7. A product according to any one of the preceding claims wherein the peptide has from 4 to 200 amino acids.
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8. A product according to any one of the preceding claims wherein the carrier has a size suitable to ensure transmission of the agent through the lung capillary bed.
- 5 9. A product according to any one of the preceding claims wherein the carrier is a microparticle.
10. A product according to Claim 11 wherein the microparticle is a protein microparticle, such as an albumin microparticle.
- 10 11. A product according to any one of Claims 8 to 10 wherein the wherein the product comprises a population of carriers of which less than 2% are in excess of 6 μm as a maximum dimension.
- 15 12. A product according to any one of Claims 8 to 11 wherein the majority of carriers are from 2 to 4 μm as a maximum dimension.
13. A product according to any one of the preceding claims wherein the peptide is bound to the carrier by a covalent bond.
- 20 14. A product according to Claim 13 wherein the peptide comprises a cysteine and is bound to the carrier by linking the -SH group of the cysteine to a thiol reactive group on the carrier.
- 25 15. A product according to any one of the preceding claims wherein the product additionally comprises fibrinogen, or a variant or fragment thereof, having an inducible platelet-aggregating activity, bound to the said peptide.
16. A product according to Claim 15 wherein the fibrinogen (or variant or fragment) is bound to the peptide by non-covalent bonds.
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17. A product according to Claim 15 or 16 wherein the fibrinogen (or variant or fragment) is bound to the peptide by covalent bonds.
- 5 18. An injectable pharmaceutical product having an inducible platelet-aggregating activity comprising an insoluble carrier to which fibrinogen, or a variant or fragment thereof, is bound in a configuration such that the fibrinogen binds to activated platelets in preference to inactive platelets.
- 10 19. A product according to Claim 18 which, when introduced intravenously, will only become involved significantly in formation of a blood clot at the site of a wound where platelets are already activated.
20. A method for preparing a product as defined in any one of Claims 15 to 19, comprising providing a product according to any one of Claims 1 to 14 and mixing with fibrinogen, or a variant of fragment thereof and optionally further comprising one or more of the following steps –
- 15 (a) removing unbound fibrinogen;
- 20 (b) formulating the product with a pharmaceutically acceptable carrier or diluent;
- (c) diluting the product to provide a pharmaceutically acceptable unit dose; and
- 25 (d) sterilising the product, or ensuring product sterility throughout steps (a) to (c).

21. A method of promoting haemostasis in an individual comprising administering to the individual a pharmaceutically effective dosage of a product as defined in any one of Claims 1 to 19.
- 5 22. A method of treating an individual with thrombocytopenia comprising administering a pharmaceutically effective dosage of a product as defined in any one of Claims 1 to 19.
23. A product as defined in any one of Claims 1 to 19 for use in
10 medicine.
24. Use of a product as defined in any one of Claims 1 to 19 in the manufacture of a medicament for promoting haemostasis.
- 15 25. Use of a product as defined in any one of Claims 1 to 19 in the manufacture of a medicament for the treatment of a patient with thrombocytopenia.
26. A method or use according to any one of Claims 21 to 25 wherein
20 the patient has a platelet count below $400 \times 10^9/l$, preferably below $150 \times 10^9/l$.
27. A method or use according to Claim 26 wherein the platelet count is below $10 \times 10^9/l$.
- 25 28. A method or use according to any one of Claims 21 to 27 wherein the patient has a failure in platelet production from the bone marrow.

29. A method or use according to Claim 28 wherein the failure in platelet production from the bone marrow is caused by a blood cancer, or cytotoxic chemotherapy or radiotherapy.
- 5 30. A method or use according to any one of Claims 21, 23 or 24 wherein the patient has an inherited or drug-induced disorders in platelet number or function.
- 10 31. A method or use according to any one of Claims 21, 23 or 24 wherein the patient's platelets have been mechanically damaged.